

The following is the Observation that was made of the last Eclipse of the Sun, at the Observatory Royal at Berlin.

1748. July 25. N. S. The Beginning of the Eclipse was not observed, the Sun having been covered with Clouds.

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The *Annulus* was completed at 11 52 51 *ante merid.*

— — — broken 11 54 13

The End of the Eclipse 1 25 9 *post. merid.*

The Diameter of the Sun was 31'. 43".

This Eclipse was likewise observed annular at *Francfort* upon the *Oder*, but not so exactly as at *Berlin*.

IX. *A Letter from James Parsons M. D. F. R. S. to the President, containing an Account of a preternatural Conjunction of two Female Children.*

S I R,

Read Nov. 17.
1748.

ABOUT the middle of *September* last a Woman in *Holborn* was deliver'd with much Difficulty of two Girls join'd together by the Bellies in so singular a manner, as to deserve a particular Description to be laid before you and the *Society*, as a very curious Subject.

The Care of preparing these Children for keeping in Spirits was committed to Mr. *James Sherwood* Surgeon, who was so kind to send for me to observe them with him; and it was resolved to inject them, in order to make our anatomical Examination the more accurately,

rately, which was very ingeniously executed by Mr. *Sherwood*, and the State of the Children was as follows:

The Skin of Part of the Breast and Belly was continued to each Child, from the lower Part of the *Sternum*, down to the Insertion of a single * *Funis umbilicalis*, which, instead of one to each, serves in common to both.

Each Child had its peculiar Muscles of the *Abdomen*; but the strait Muscles were so divided, as that the *Rectus* on the right Side of the one Child had the *Linea alba* between it and the *Rectus* on the left Side of the other, and *vice versa*; so that the Line of each lying directly upon each other, was colligated and open'd, and the Conjunction of the *Musculi recti*, thus formed but one common abdominal Cavity up to the Diaphragms of each Child; above which each had its own proper *Thorax*, even evident from their external Appearance; whereas, had their Junction been but never so little in a lateral Way, each would undoubtedly have had its own separate *Abdomen*, since they would not have been so closely pressed forwards, as to occasion that intimate Coalescence of Parts in the Subject before you; which is manifest in the Dissections of several of these kinds of Monstrosities, some of which have been join'd by the Hips, some by the Backs, some partly by the Sides, and one or two Cases mentioned by *Parée* and *Tulpius* joined by the Bellies.

None of these uncommon Subjects ought to be touch'd with a Knife, until it is well injected, because the vascular System, where there are any preternatural Adhesions

* See a similar Case in these *Transf.* No. 65, p. 296.

Adhesions or Distortions, can never be understood nor traced without it; and therefore *Tulpius*, whose Account of his Subjects is very inaccurate, and who certainly did not inject it, confesses he could make no Distribution of the Vessels, nor find out any thing of them distinctly.

But in the present Case, a complete Injection of the Children being made by the Vessels of the umbilical Cord, we were enabled to give the following exact Account of the vascular System and other Parts; to which however we shall premise a Description of the intestinal Canal of both.

When we came to examine the Intestines, the only proper means for laying them fairly to View, before they were taken out of the Body, was to inflate them; which was accordingly done, and thereby every Part of them was rendered as conspicuous as the Drawing now before you, and of the same Size exactly. Each Child had its own peculiar *Oesophagus*, *Stomach*, and *Pylorus*, in a natural State; from each of which the *Duodenum* descended about three Inches, and then united into one common Duct, which we shall call the Beginning of the *Jejunum*, and which was near four Inches long: This was inserted into the upper Part of a large *Sacculus*, formed out of the very Coats of the Intestines, and differing in no wise from them in Colour, Density, or any other Quality but the Form and Extension.

Its horizontal Diameter was about 5 Inches, and its vertical about 4, and it was formed out of the *Jejunum*, which, in some Subjects, is as long as the *Ileum*, in most near that Length, and no doubt
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was an Attempt of Nature to supply the Want of two regular *Fejuna* : For we are to observe, that if these Childer had lived, each having its own proper Stomach, would probably have eaten a due Quantity of Food for its Sustenance; and the Office of the Stomachs might have been well enough performed; but each requiring a separate System of Intestines to dispose naturally of the digested Chyle, and this preternatural Conjunction happening between them, the *Fejuna* of both were confused together; and having Room in the *Abdomen*, now large and common to both, these Parts of their Organizations, that ought to have grown into two Guts of a considerable Length, being hindered from a regular Accretion, the joint growing Powers of both formed the Sack of Communication now before you; which is proportionably capacious enough to answer the Purposes of two natural *Fejuna*; below which the rest of the Intestines of each Child were sufficient to do their several Offices.

In the lower Part of this *Sacculus* there was an Outlet on each Side, which were the Origins of their separate *Ilea* : These were in a good State, and regularly inserted each into its *Cæcum*; and this in each had its natural *Appendicula*; these were regularly succeeded by their *Colons*, and terminated by their proper *Recta intestina* to their natural Outlets; with this Difference only, that the *Colons* were out of their natural Situation, and were convoluted in each Child, by as narrow Portions of the *Mesocolon*, as any Part of the *Ileum* is by its Mesentery; and that as low as the going off of the *Rectum*.

Of

Of the Vascular System.

We are to take notice, that as these Children had but one abdominal Cavity between them, so it contained, in Appearance, only one Liver of a considerable Size, and an irregular Form; but this consisted of two in Reality preternaturally joined, as there were two Gall-Bladders. The umbilical Vein is inserted into this, pretty nearly in the usual manner, and afterwards this Canal is divided into two Branches, which carry the Blood into the *Vena cava* of each Child; whence it falls naturally into the right Auricles of their Hearts.

The Heart of the larger Child is but small, has a bifid *Apex*, and from the Division has a Vestige of the *Septum*, on both the upper and under Sides; which forms a *Sulcus* in a longitudinal Direction, from between the *Apices* to the *Basis*; from whence arises a *Pericardium* which extends itself over each Side from the *Sulcus*, and so forms a separate *Capsula* over each Ventricle of this Heart, and may therefore be call'd a double *Pericardium*.

The ascending Vessels are distributed according to the Standard of Nature; but the descending Trunk of the *Vena cava* rides over that of the *Aorta*, above the going off of the Emulgents, and sinks back again behind the external *Iliac Artery*, before it is itself divided into *Iliac Veins*, descending naturally to the lower Extremities, as do the Arteries from thence also.

The Kidneys, urinary and uterine Parts were in a natural State; and the Lungs appeared well, and seem'd as if this Child had breathed.

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The Heart of the smaller Child was single, but above a third larger than it naturally ought to be ; out of which the ascending Arteries are very regular and natural ; but there was scarce any Vestige of Lungs in this Child on the right Side of the *Thorax*, and but a small Portion of the pulmonary Substance in the left. The descending Trunk of the *Aorta* is very small in comparison of the other ; yet goes down regularly towards the Extremities, except the internal *Iliac Arteries*, which were obliterated and degenerated into Ligaments, whilst the Externals continued down, as I have just said ; for only the *Iliacs* of the larger *Fœtus* took place in the umbilical Cord, which was the Reason that we found but two Arteries in it ; so that, altho' both Children received Nourishment by the Division of the Canal from the Liver to the *Vena cava*, yet the superfluous Blood of both could be sent back to the *Placenta* no other way than by the internal *Iliacs* of the greater Child.

The descending Branches of the *Vena cava* enter'd as usual, on the right Side, into the Auricles ; but those of the left join in one Trunk, pass round the left Auricle, and enter into the right close by the *Cava ascendens*, which is of a natural Size, and very regular up to the Diaphragm, from which it extends a full Inch before it reaches the Auricle ; the Kidneys differ a little in Size from each other ; yet these, with the other urinary and also the uterine Parts in general, are in good Order ; but the most remarkable *Lusus* of Nature in these Subjects is an Artery which arises from the *Aorta* about the Place of the *Celiac* of the one Child, running along

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before the Liver, and is inserted into the same Place of the *Aorta* of the other. It was much larger than any other Artery in either Child, and bestow'd Branches on the *Stomack*, *Mesentery*, and *Mesocolon*; being about five Inches long; for there were neither *cæliac* nor *mesenteric* Arteries, according to Nature in either Child.

Observations.

When some former Authors (before the Learned were so happy as to know the Sweets of experimental Philosophy) endeavoured to account for monstrous Productions in the animal World, they could have recourse to no other means to explain them, than to the then reigning Systems by which they usually explained the *Phænomena* of the natural Generation of Animals; and that was in general, that an Animal was produced by the Admixture of the supposed seminal Matter of both the Parents; that the Quantity produced by this Commixtion was supposed always to contain only a Quantity of Particles sufficient to produce a natural *Fœtus*, by the Mediation of a certain *plastic* Power, said always to attend it, as well as any other natural Production in the World.

Upon this Plan many little Alterations were made by succeeding Authors, without differing widely from this general Notion; all as liable to Objections, and as easily refuted as the Source from which they sprung. And notwithstanding the Truths that have since been traced out by later philosophical Advances, leading to a more reasonable Knowledge of the Subject, yet there still are some who
appear

appear unwilling to quit their old Errors. But as this is not the Place intended for a Discussion of the several Opinions concerning it, we shall here only consider how the Conjunction of these two Children happen'd; as well as the means whereby Children acquire superfluous or want the necessary Members, or are any otherwise deformed.

According to a late Reading I had the Honour to exhibit before you upon the Analogy between the Propagation of Animals and Vegetables*, I hope it appear'd pretty clearly, that both these Parts of the Creation are daily propagated from Organizations already formed and treasured up in natural Receacles provided for them, till they come to be removed into proper Places of Nourishment; from which Opinion we can find no Reason to swerve at present, and which we must have recourse to, in order to account for the present Subject.

If the old Systems had Weight formerly, later Enquiries have expos'd their Absurdities. Truth admits of nothing absurd, and as to what regards the Works of the Creation, especially that of Animals and Vegetables, that System of accounting for their Generation which is most simple, and is least liable to Objections, is most likely to succeed in the Enquiry; and since the Ordination of Providence was that all should be good, it will appear the means of the Propagation of Animals and Vegetables, which was partly the Subject of the Discourse lately read before you, will seem least of all liable to any Accidents that might degrade the ge-

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* Which I design shortly to publish. Y. P.

neral Usage and Standard of Nature, by the Production of Monstrosities in any Part of her Works.

When the *Vis plastica* was thought to be the Agent for the Guidance of the Work of Generation, and that a monstrous Child appear'd, it was blamed by the Authors of most Nations in some of these Particulars; the seminal Matter was either in too small or too great a Quantity, and the *Vis plastica* puzzled in the Management of the Particles that go to form the different Parts of the Animal; or it was sometimes careless and negligent in the Application of the Ideas of some or other of the Parts, and consequently the Animal must want some Limb or other; or, from a Superabundance of Matter, have superfluous Limbs added to them by this unskilful erring Agent: But in whatsoever manner the Commixtion of the male *Semen*, with that ignorantly supposed to be in Females, and the Formation of a *Fetus* therefrom, is said to be conducted, the Accidents and Chances against the Welfare of all animal Beings would be so numerous, and the State of Nature so miserable, that the greatest Part of the Inhabitants of the Earth and Waters could not avoid being monstrous, and full of Confusion: The Almighty would have produced an Effect contrary to His Divine Goodness, and Care for His Creatures; and, in fine, it would be highly absurd, to suppose the Regulation of things of this high Consequence to be committed to any finite subordinate ignorant Agent, which must undeniably be insufficient for this great Work.

But the System of Generation which supposes the Organizations of Animals and Vegetables already formed with an Incapacity of growing into any
other

other Forms than those of their Parents, is the most secure from any Confusion, or any preternatural Digressions from their due Forms, is most compatible with that gracious Design, that all should be good: For every animal and vegetable Body is daily seen to be constant to its own Kind, and can be subject to no Accident but one to render it monstrous in its Accretion, and that in general is Compression: For all animal and vegetable *Ova* are most certainly perfect in their first Formation, as the Seeds of the latter plainly shew, and in a State of Rest, until they are deposited in their natural *Matrix*, be it sooner or later; the *Ova* of Females in the *Ovaria* during Life, and the Seeds of Vegetables in our Repositories for any Number of Years; and, after that, would certainly, without Accidents or Interruption, continue their perfect Form to their utmost Growth.

From hence it will be easy to account for the preternatural Adhesion of these two Children, and the Confusion of their *Viscera*, upon the most easy Plan, and most simple and persuasive Reasoning imaginable; and from hence also we shall be able to account for every other Monstrosity that can attend Animals and Vegetables,

We have observed before, that each Seed and *Ovum* contains the Animal and Vegetable proper to its Species. Now, when two or more of these animal *Ova* are fecundated, and come into the *Uterus*, the Sides of the *Ova* (which are the Membranes that contain the Fluids in which the little Organizations swim) must inevitably come into Contact; and if the Membranes of each continue in a good State, the *Fetus's* will be free in their
several

several Apartments, and grow proportionably; but if the Parts of the Membranes, which are close together, by being thin and weak, or by any irregular Resistance, or Friction, come to be dissolved or broken, then the Fluids of both unite, and the two little Organizations, having no longer a Partition between them, come together, adhere, and intwine into each other, their tender Parts easily coalescing; and from the natural Disposition of each to grow and increase, their Accretion goes on, there is a mutual Insinuation of Vessels where the Parts are compressed, and a mutual confused Circulation carried on, and at length the Whole becomes irregular and monstrous.

We have many Facts to corroborate this Opinion, and to shew that the Fibres of Animals and Vegetables have a wonderful Capacity of extending and insinuating themselves into one another; and of continuing a Circulation reciprocally; and the Blood-Vessels of being elongated, and even of producing new Ramifications where the Restoration of a Part requires it, from the Principles I before laid down in the first Part of my Analogy; else how should wenny Tumours of a monstrous Size be propagated on the Surfaces of human Bodies? how should the Lungs adhere to the *Pleura* so intimately as to become one entirely united Mass, as incapable of being separated without a Knife as any Part of a Muscle? How should the *Surculi* or *Buds* of Trees implanted into others by Gratting or Inoculation, so insinuate their Fibres into those of the Stock in which they grow, as to become

become one continued Piece of Wood with them? How are the *Sutures* of the *Scull*, and those of the *Epiphyfes* of Bones, totally obliterated in an advanced Age, but by the Insinuation and reciprocal Combination of the Fibres of each other? And, in a word, how are many recent deep Wounds so soon agglutinated, if there be not a speedy Insinuation of Vessels, and a Circulation soon carried on?

Indeed if we are only to look on, and consider the Subject before us in its present State, it will be somewhat difficult to conceive how this strange Conjunction could happen; but we are to go back, and consider two minute tender Organizations, whose remotest Parts from each other might not exceed perhaps the fiftieth Part of an Inch at the time of their Adhesion, and the Difficulty is taken away. Thus our Children happening to be compressed by their Bellies, the tender Integuments between the *Musculi recti* in each were soon thinned and dissolved, the Coalescion happen'd as I have said before, and the Intrusion and Commixtion of Parts, that appear before you, was begun, and carried on by their growing wheresoever the Resistance was least.

And thus if the Contact and Pressure of the two *Fetus's* be pretty equal and moderate, they will grow equally; if the Compression be very great, and both be compressed all round, having no Room, because of the *Uterus* not giving Way, the Confusion of both, or indeed of one only, will be so great as to cause a Mass without any Form or Regularity at all: If their Contact be so disposed, as that one *Fetus* is much compressed and confined, the other
has

has sufficient Room, this will grow proportionably, whilst the Growth of the other being intirely stopped from the Beginning in its minute State, except perhaps an Arm, or Leg, or Head, &c. that which has Liberty will have such superfluous Limb or Part growing with it, as remained uncompressed, whilst the rest is obliterated and lost.

The same is also apparent in Vegetables: A Carrot, Parsnip, Radish, and such-like Vegetables as naturally grow strait and well-form'd, may be distorted and alter'd at Pleasure, as they grow, by Compression: For, as the nutritious Juices are equally distributed, and attracted in the same Quantity for the Use of the Whole; if a Compression be made on any Part, those Juices, which are hinder'd to flow into the compressed Part, will be determined elsewhere, and form Gibbosities and Deformities in other Parts of the Organization, where the Resistance is less, and the Whole become changed from its natural Form. Thus *Gourds*, as they grow, in applying Pressure by Ligatures, or otherwise, may be brought to various Forms; and *Apples*, placed in cylindrical *Phials*, whilst small, will, by the lateral Pressure, lose their roundish Form, and acquire that of a *Cylinder*. And thus Nuts, Apples, &c. may be conjoin'd and become double; and not because there was a Superfluity of a supposed Matter to form them, by any subordinate Help: And thus also a Nut or Apple, &c. among a Bunch of sound ones, may, by Compression of its Organization, be vitiated and ill-form'd; and not because there wanted a Sufficiency of this supposed Matter.

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In this manner, it is highly probable, all animal Monstrosities happen ; and this was the Case of the *Cow*, which many of us saw a Fortnight ago. Her twin Sister happen'd to be confin'd and compressed to her Spine ; nothing remaining free but the *Abdomen*, the Dugs, one of the anterior Extremities, and the Dew-lap ; every other Part was obliterated, whilst these continued to grow, by the Communication of Vessels between them, in the manner above explained.

This, Sir, is the Sum of what I am capable of conceiving concerning monstrous Productions : I shall think myself happy in the Concurrence of this learned *Society* with my Opinion ; and am, with the truest Respect,

S I R,

Your most obedient Servant,

James Parsons.

An Explanation of the Drawings representing the above-described Two Children joined together.

TAB. III. *Fig. I.*

Represents two Female Children preternaturally join'd by the abdominal Integuments, from the *Umbilicus* up to the *Cartilago ensiformis*, in such a manner, as to form between them but one *Abdomen*.

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TAB. IV.

TAB. IV. *Fig. 2.*

Shews a back View of the intestinal Canal of each Child, from the Stomach to the *Anus*.

a, a, The Stomach of each.

b, b, The *Duodenum*.

c, c, Part of the *Jejunum*, which is common to both Children.

d, The remaining Part of the *Jejunum* form'd into a *Sacculus*, out of which,

e, e, The *Ileum* of each Child arises.

f, f, The *Cæcum* of each.

g, g, The *Colon* of each.

h, h, The *Rectum* of each.

TAB. III. *Fig. 3.*

Is a fore View of the other *Viscera*, and vascular System of both Children.

a, the umbilical Vein entering into the Liver, which is form'd of that of each Child preternaturally conjoin'd.

b, b, The Lungs of the larger Child.

c, The Heart, which has a bifid *Apex*, and of which each Ventricle has its particular *Pericardium*, from the *Sulcus* that divided it.

f, The great Vessels arising out of the Heart.

g, g, The Kidneys in some measure misshapen.

h, h, The Trunks of the large Vessels descending to the lower Extremities. The Vein running before the Artery, and sinking behind it again where it divides.

i, The right *Ureter*.

- k*, The Bladder ; and
l, The umbilical Arteries, with the *Urachus* turn'd down, to shew
m, The *Uterus*, &c.
n, n, Is an Artery communicating with, and entering into, the *Aorta* of each, near the going off of the Emulgents.
o, The Heart of the smaller Child, much too large in proportion, together with the right Auricle.
p, Part of the Lungs, which were render'd much too small, in proportion, by the Compression of the large Heart upon them.
q, The *Aorta* and pulmonary Artery, as they are connected by the *Canalis Arteriosus* (*r*).
s, t, The descending Trunks of the Veins; the latter of which was preternatural, running round the left, and entering into the right Auricle in its posterior Part.

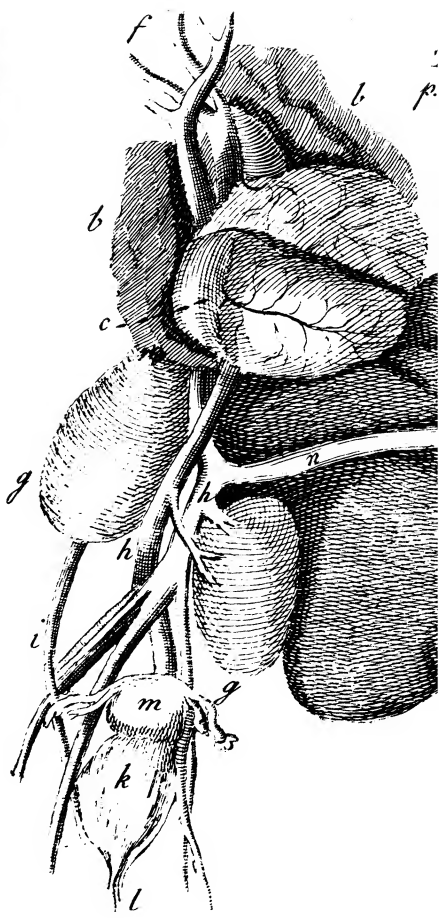
The other Parts were much as those of the former Child in general ; except the *Aorta*, which was much smaller, as the Figure shews.

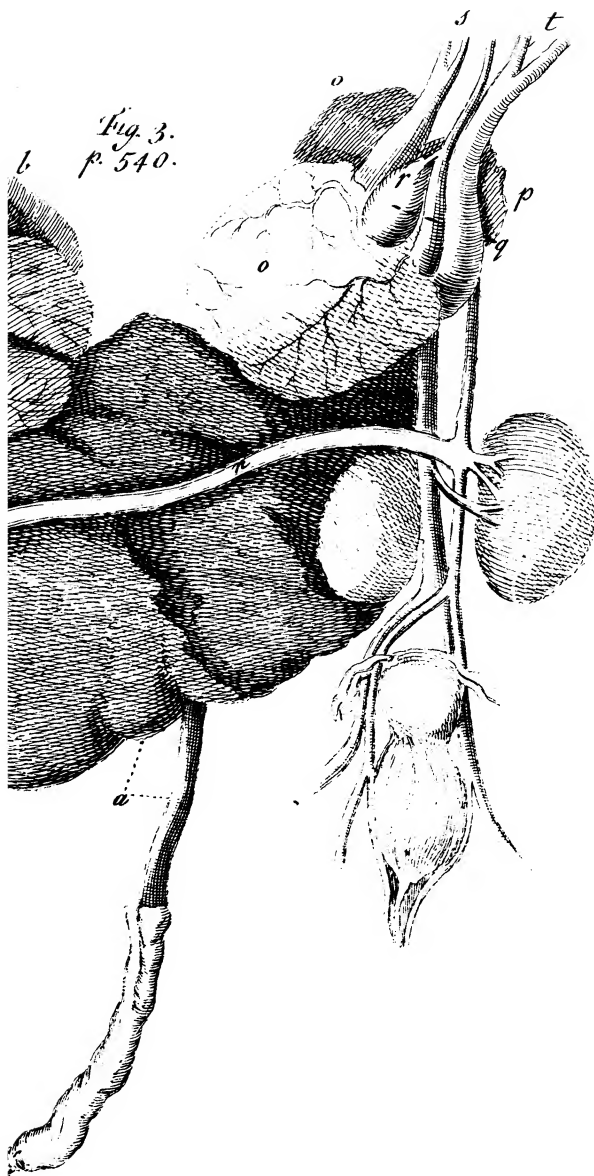
XI. *An Account of the Preparation and Uses of the various Kinds of Pot-ash ; by John Mitchell M. D. & F. R. S.*

Read Nov. 17 and 24.
 1748.

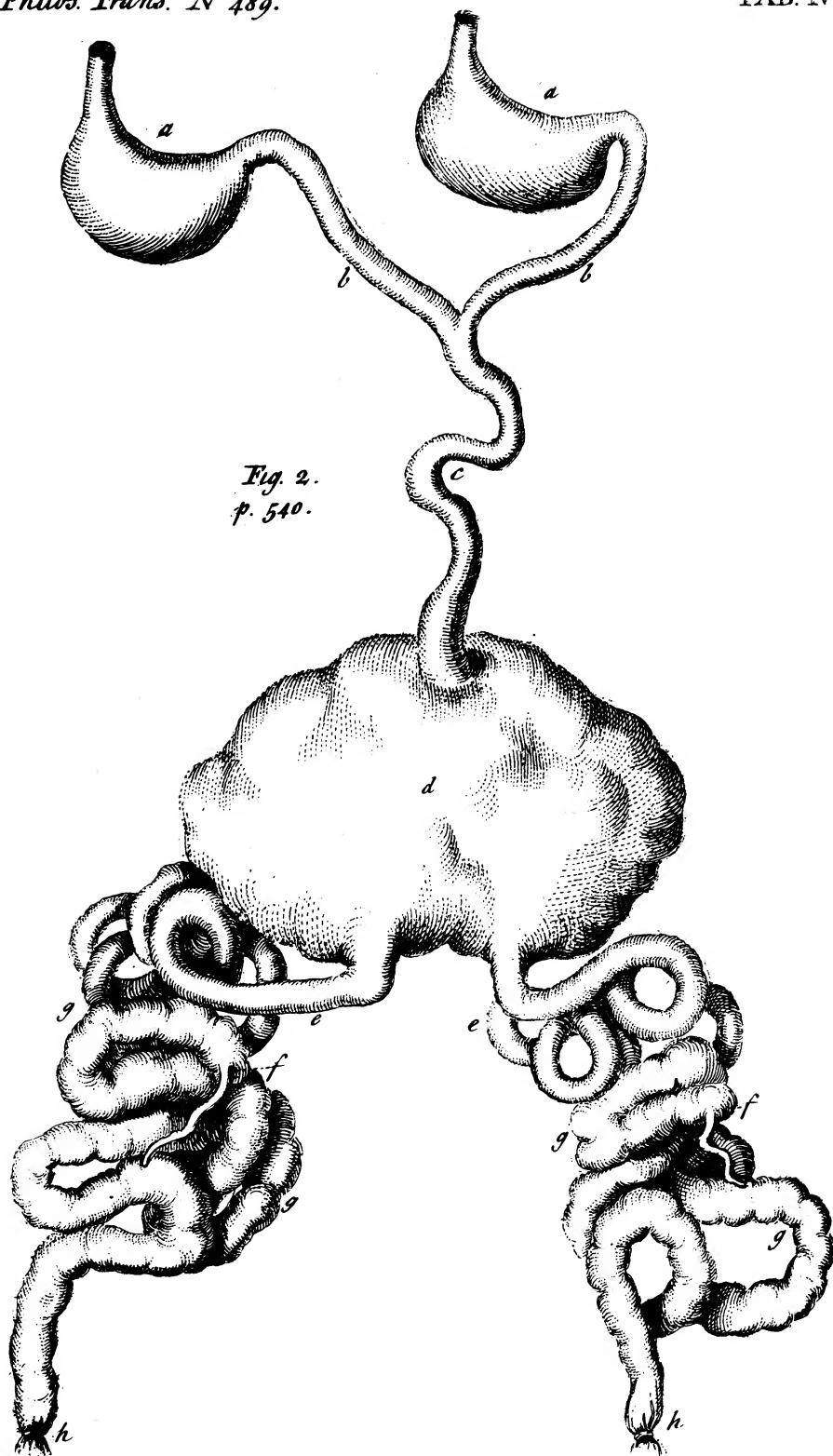
ALTHO' Pot-ash is a thing daily used, and well known even to the Vulgar ; yet, as the making it is a mechanic Art, practised only by the Vulgar, and neglected and overlooked by the Learned, so we have had

Fig. 1.
p. 539.





J. Mynde sc.



*Fig. 2.
p. 540.*

